RAPTOR rapture

Pilots say the F-22 is a true marvel to fly

by Staff Sgt. Matthew Bates **** photos by Tech. Sgt. Samuel Rogers

Growing up in Bloomfield, Ind., Lt. Col. Kevin Fesler dreamed of flying airplanes. He watched them take off and land at the airport and wondered what it was like to be in the cockpit, the world far below, and the seemingly limitless sky, stretching out as far as the eye could see.

He had to find out.

So, instead of asking for a new bicycle or the latest toy, he started asking for money for his birthdays and at Christmas. When he had enough, he bought flying lessons at an airfield that was nothing more than a grassy strip of land five miles from his childhood home.

"I don't remember a time I didn't want to fly," he said. "After learning to fly on that grass strip, I was fortunate to get an Air Force ROTC scholarship and then a pilot training slot. And now here I sit."

"Here" is a good place to sit. Colonel Fesler is commander of the 94th Fighter Squadron at Langley Air Force Base, Va. It's the second fighter squadron in the Air Force to receive and operate its fifth-generation fighter, the F-22 Raptor.

This modern marvel of technology is a far cry from anything Colonel Fesler ever imagined flying when he was a youngster. Sometimes, even the grownup version has a hard time believing he gets to fly the stealth jet.

"I think if I sat down and really thought about it, it would seem overwhelming," he said. "It's certainly not what I envisioned I'd be flying as a kid. It's an amazing plane."

Colonel Fesler felt this way right from the start. He still remembers his first Raptor flight. He had to do it solo, of course, because there isn't a two-seat Raptor trainer, like with the F-15E Strike Eagle he used to fly.

F-22 Raptors taxi into position for takeoff from Kadena Air Base, Japan. The jets, from Langley Air Force Base, Va., went to the Pacific base in May 2007 for their first overseas deployment, a three-month tour.

"I remember thinking that I wanted to do everything perfect," he said.

This meant going over numerous checklists in his head, recalling things he'd learned in the simulator and relying on his prior experience in the Strike Eagle. In the end, everything worked out and the colonel had a successful first flight.

Still, he was all business.

"I don't remember thinking 'sweet,' while I was up there," he said. "I think I was more concerned with doing everything right, like staying in formation and talking on the radio. And I was just happy everything went well and I was able to land safely. Even then, though, I was struck at how easy this plane was to fly."

Flying jets is nothing new to Colonel Fesler and his fellow F-22 pilots. Every one of them has logged at least 500 hours in the F-16 Flying Falcon, F-15 Eagle or the Strike Eagle before the Air Force chose them to fly the Raptor. Then they attended a three-month transition course that gave them a fast-paced, down-and-dirty overview of the aircraft and how to fly it.

"Not that we don't know how to fly," Colonel Fesler said. "It's just that the F-22 has some differences from the planes we're used to flying that make it unique."

For one, the control stick is located along the right side of the cockpit and not in between the pilot's legs as in most fighters.

"For quite a while, whenever I took my hand off the stick, I would reach for it in the middle," Colonel Fesler said. "It was muscle memory from flying the F-15E for so long. So, it's little things like that that take getting used to."

The first month of the course consists of classroom lectures and flights in the simulator, while the last two put the pilots in the cockpit and gives them the chance to fly the real thing. It's an exciting, intimidating and awe-inspiring introduction between man and machine, he said.

"I don't remember thinking 'sweet,' while I was up there," Lt. Col. Kevin Fesler said.

Yet one look at the jet dispels any thought that this is just another plane. There are no soft curves or bright paint. It is all hard edges and sweeping angles, a sleek aircraft that is both beautiful and menacing at the same time.

"It is a mean-looking aircraft," Colonel Fesler said. "No doubt about it."

Before all their missions, pilots — like F-22 Raptor pilot Capt. Brian "Mute" Nash (left) — receive an in-depth flight briefing.

This hard exterior serves a purpose. The plane's angles, skin composition and paint scheme all combine to make it nearly invisible to radar's electronic eye.

But the true menace of this plane lies beneath its exterior.

"The first time the afterburner kicked in and I flew down the runway I knew this plane was different," said squadron Raptor pilot Capt. Greg Ebert. "You could feel the power — and we weren't even using all of it."

That power is generated by the plane's two Pratt & Whitney F119-PW-100 turbofan engines with afterburners and two-dimensional thrust-vectoring nozzles that are each capable of producing 35,000 pounds of thrust. That's more thrust than in any current fighter, which allows the F-22 to cruise at more than 1,100 mph without using afterburner — a capability known as supercruise. This capability expands the F-22's operating envelope in both speed and range over other fighters, which must use fuel-consuming afterburners to go supersonic.

While the F-22's top speed is a guarded secret, pilots refer to it as simply "very fast."

"Yeah, this plane can move," said Captain Ebert, from San Diego. "We rarely use full afterburner, but when we do it's quite a ride."

What the plane has in engine power it also matches in firepower. Designed as an air-to-air weapon, the Raptor's main mission is to destroy all aerial threats in a battlespace. However, it can also destroy ground threats.

"I like to think of [the F-22] as a dual-role airplane," Colonel Fesler said. "Air dominance is its primary role. But with the way modern warfare is waged, it made sense to include an air-to-ground component within the aircraft."

In its air-to-air configuration, the Raptor carries six AIM-120 advanced medium-range air-to-air missiles and two AIM-9 Sidewinder missiles. It also has an M61A2 20 mm cannon with 480 rounds. For air-to-ground missions, the jet carries the complement of two missiles, plus two 1,000-pound GBU-32 joint direct attack munitions internally.

"This plane is perfectly capable of destroying anything in the air or on the ground," said Capt. Brian Nash, another squadron Raptor pilot.

Weapons and engines aside, the one thing most pilots point to as what's most amazing about the F-22 is its maneuverability. Its design, advanced flight controls, integrated avionics and thrust-vectoring capability combine to give the Raptor the ability to perform aerial maneuvers once impossible to do. It can climb, spin, roll, fall and loop faster, smoother and tighter than any other fighter in the world. The plane gives pilots much more control and maneuverability.

To watch the F-22 fly is to watch not a machine, but a bird of prey. Its flight seems effortless, at times gravity-defying.

"Sometimes as I'm flying it I'm thinking, 'Man, this shouldn't be possible,'" said Captain Nash, who is from Long Beach, Calif.

And, like a bird of prey, the Raptor can see a long way. It possesses a sophisticated sensor suite allowing the pilot to track,

Just before taxiing his F-22 Raptor before a mission, Capt. Brian "Mute" Nash lowers his stealth jet's canopy. The captain flies with the 94th Fighter Squadron.

identify, shoot and kill air-to-air threats before anyone can detect it. For the enemy this means death; for Raptor pilots, it increased survivability.

"Being able to see such a large battlespace is invaluable," Captain Ebert said. "Seeing the enemy, before he can see you, is a great capability and every pilot's dream."

This ability also increases the survivability of other fighters flying with the F-22. The Raptor can detect a threat and give other aircraft a heads up long before the threat is in range.

With its increased speed, exceptional maneuverability, long-range vision of the battlespace and advanced weaponry, the F-22 has a significant advantage in the air, the captain said.

"It's not fair at all, if you're the enemy," Captain Nash said. "But we don't want it to be fair."

The Raptor is part airplane, part computer and all menace. It's an aggressor, defender and protector and can terrorize enemies in the sky or on the ground, at close range or long distances.

There is no other aircraft that even comes close to matching its capabilities, including all the current fighters in the United States and allied fleets. During development, and at exercises like Northern Edge in Alaska, the F-22 logged kill after kill against a variety of fighter aircraft, to the point in frustrating the pilots in the opposing aircraft.

"Yeah, I'm sure those guys get tired of being killed by Raptors," Captain Nash said. "But when it's all said and done, they respect the plane and are sure glad it's on their side."

The F-22 is constantly raising the bar. In its current mission supporting Operation Noble Eagle — protecting the skies over the United States — the Raptor set a new scramble record. It was prepped, taxied and in the air faster than any other aircraft to date. For that feat, the Raptor team that includes Airmen and Lockheed Martin Corporation workers earlier this year received the Robert J. Collier Trophy for the greatest achievement in aeronautics or astronautics in America during the preceding year.

The records and awards are also testament to the skill and dedication of the people who care for it. Like the pilots, original F-22 maintainers moved over from working on F-15s and F-16s. For most, working with the F-22 is both a thrill and a challenge.

"The F-22 is so different from other fighters," said Senior Airman John Lugo, an F-22 crew chief with the 1st Aircraft Maintenance Squadron. "It's so technologically advanced. The systems are all integrated and the onboard computer controls most of the aircraft."

Because of this, the maintainers not only have to learn how to work on the aircraft itself, but also on the highly computerized system within it.

"It's similar to being an auto mechanic who has to learn how to fix new cars that have computers that control everything," said Airman Lugo, who is from Tempe, Ariz.

Still, the Airman and fellow maintainers enjoy being among the first to work on the Raptor.

"Everything we do today is writing the policies and procedures for Airmen tomorrow," said Staff Sgt. Gregory Manning, an F-22 armament systems specialist at the maintenance squadron. "That's a cool feeling knowing you're having an impact every day you go to work."

The F-22 fighter community has reason to boast: Raptor pilots, maintainers and engineers are racking up awards, records and accomplishment after accomplishment on a regular basis. But they aren't cocky and they don't rub their success in the faces of Airmen working on other jets. Instead, they take the attitude of quiet reverence and appreciation.

"There is no swagger here," Captain Nash said. "It's a feeling of 100 percent respect for the plane and gratitude that we're able to fly it. It could just as easily be someone else sitting here."

No one knows that better than Colonel Fesler. He now knows what it's like to be in the cockpit, the world far below and the sky, seemingly limitless, stretching out as far as the eye can see.

He still likes to watch planes take off and land. Except now, instead of flying small Cessnas from a grassy strip, he flies the world's most advanced fighter jet.

After finishing their work on F-22s, avionics specialists Senior Airman Joshua Shannon (left) and Senior Airman James Hansel head for their squadron to turn in their tool box.

Weapons loaders ready a Raptor for a mission by uploading a 2,000-pound joint direct attack munition into the stealth fighter's internal weapons bay.

A modern fighter for a modern era

As the F-22 Raptor enters service as the Air Force's fifth-generation fighter, some people question the plane's necessity.

It's too expensive, current fighters can do the job and the Air Force should focus on other priorities. These are all concerns raised by citizens, servicemembers and politicians alike.

But top Air Force officials say they need the F-22 for several reasons.

No one doubts the fighter is more survivable, faster and stealthy. That makes it less of a target for the advanced surface-to-air missiles many nations own. But the main reason the Air Force needs the F-22 is to replace an aging fleet of fighters that have been at war since 1990.

During the Vietnam era, the average Air Force aircraft was nine years old. Today, the average is 24 years. Some of the F-15 Eagles the Raptor is replacing are pushing 30.

"We have never flown fighters this old," said Lt. Gen. David Deptula, Air Force deputy chief of staff for intelligence, surveillance and reconnaissance. "These are geriatric airplanes."

They are starting to show signs of old age. In its prime, the F-15 could fly at more than 1,700 mph. Today, Eagle pilots can't push past 1,100 mph because of maintenance concerns and over-stressed frames. So, replacing them is a high priority.

"The first step in recapitalizing our aging fleet is fielding the F-22 to replace the F-15 as our front-line air dominance fighter," Air Force chief of Staff Gen. T. Michael Moseley said.

Ensuring air dominance is another reason the F-22 is vital for a modern Air Force.

"At the end of the day, our Air Force must be able to hold global targets at risk for our nation," General Moseley said. "The first piece of that equation is gaining access to the skies, which the F-22 will provide."

—Staff Sgt. Matthew Bates